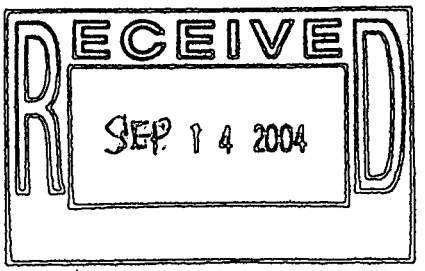
Rocky Flats Environmental Technology Site

TYPE 1
RECONNAISSANCE LEVEL CHARACTERIZATION REPORT (RLCR)

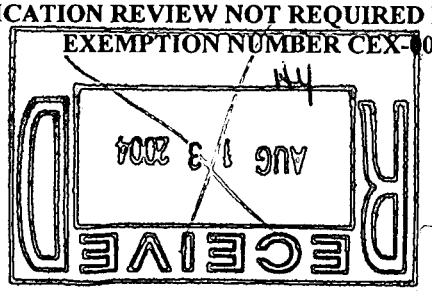
Building T891C Closure Project

REVISION 0

September 1, 2004



CLASSIFICATION REVIEW NOT REQUIRED PER EXEMPTION NUMBER CEX-005-02



ADMIN RECORD

IA-A-002307

TYPE 1
RECONNAISSANCE LEVEL CHARACTERIZATION REPORT (RLCR)

Building T891C Closure Project

REVISION 0

September 1, 2004

Reviewed by: _____ Date: 9/1/04
Don Risoli, Quality Assurance

Reviewed by: _____ Date: 9/1/04
D.P. Snyder, RISS ESH&Q Manager

Approved by: _____ Date: 9/2/04
Kent Dorr, Area 4 K-H D&D Project Manager

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ATTACHMENTS

ABBREVIATIONS/ACRONYMS

ACM	Asbestos containing material
Be	Beryllium
CDPHE	Colorado Department of Public Health and the Environment
CERCLA	Comprehensive Emergency Response, Compensation and Liability Act
$DCGL_{EMC}$	Derived Concentration Guideline Level – elevated measurement comparison
$DCGL_W$	Derived Concentration Guideline Level – Wilcoxon Rank Sum Test
D&D	Decontamination and Decommissioning
DDCP	Decontamination and Decommissioning Characterization Protocol
DOE	U.S. Department of Energy
DPP	Decommissioning Program Plan
DQA	Data quality assessment
DQOs	Data quality objectives
EPA	U.S. Environmental Protection Agency
FDPM	Facility Disposition Program Manual
HVAC	Heating, ventilation, air conditioning
HSAR	Historical Site Assessment Report
IHSS	Individual Hazardous Substance Site
IWCP	Integrated Work Control Package
K-H	Kaiser-Hill
LBP	Lead-based paint
LLW	Low-level waste
MARSSIM	Multi-Agency Radiation Survey and Site Investigation Manual
MDA	Minimum detectable activity
MDC	Minimum detectable concentration
NORM	Naturally occurring radioactive material
NRA	Non-Rad-Added Verification
OSHA	Occupational Safety and Health Administration
PARCC	Precision, accuracy, representativeness, comparability and completeness
PCBs	Polychlorinated Biphenyls
PDS	Pre-demolition survey
QC	Quality Control
RCRA	Resource Conservation and Recovery Act
RFCA	Rocky Flats Cleanup Agreement
RFETS	Rocky Flats Environmental Technology Site
RFFO	Rocky Flats Field Office
RLC	Reconnaissance Level Characterization
RLCR	Reconnaissance Level Characterization Report
RSP	Radiological Safety Practices
SVOCs	Semi-volatile organic compounds
TCLP	Toxicity Characteristic Leaching Procedure
TSA	Total surface activity
VOCs	Volatile organic compounds

EXECUTIVE SUMMARY

A Reconnaissance Level Characterization (RLC) was performed to enable facility "Typing" per the DPP (10/8/98) and compliant disposition and waste management of Building T891C. Because this facility was an anticipated Type 1 facility, the characterization was performed in accordance with the Pre-Demolition Survey Plan (MAN-127-PDSP) requirements. All facility surfaces were characterized in this RLC, including the interior and exterior surfaces (i.e., equipment, floor, walls, ceiling and roof). Environmental media beneath and surrounding the facility was not within the scope of this RLCR and will be addressed at a future date using the Soil Disturbance Permit process and in compliance with RFCA.

The RLC encompassed both radiological and chemical characterization to enable compliant disposition and waste management pursuant to the D&D Characterization Protocol (MAN-077-DDCP). The characterization built upon physical, chemical and radiological hazards identified in the facility-specific Historical Site Assessment Report.

Results indicate that no radiological, beryllium or asbestos contamination exists in excess of the PDSP unrestricted release limits. Fluorescent light ballasts may contain PCBs. PCB ballasts will be managed and disposed of in compliance with Environmental Protection Agency (EPA) and Colorado Department of Public Health and Environment (CDPHE) regulations. Demolition debris will be managed in compliance with regulations governing PCBs (40 CFR 761), and Environmental Compliance Guidance #27, *Lead-Based Paint (LBP) and Lead-Based Paint Debris Disposal,* as applicable.

Based upon this RLCR, Building T891C is considered a Type 1 facility and can be demolished. To ensure this facility remains free of contamination and RLC data remain valid, Level 2 Isolation Controls have been established and the facility posted accordingly.

1 INTRODUCTION

A Reconnaissance Level Characterization (RLC) was performed to enable compliant disposition and waste management of Building T891C. Because this facility was an anticipated Type 1 facility, a PDS characterization was performed. All facility surfaces were characterized in this RLC, including the interior and exterior surfaces of the facilities (i.e., equipment, floor, walls, ceiling and roof). Environmental media beneath and surrounding the facility was not within the scope of this RLC Report (RLCR) and will be addressed at a future date using the Soil Disturbance Permit process and in compliance with RFCA.

As part of the Rocky Flats Environmental Technology Site (RFETS) Closure Project, numerous facilities will be removed, among these is Building T891C. The location of this facility is shown in Attachment A, *Facility Location Map*. This facility no longer supports the RFETS mission and will be removed to reduce Site infrastructure, risks and/or operating costs.

Before this facility can be removed, a Pre-Demolition Survey (PDS) must be conducted; this document presents the PDS results. The PDS was conducted pursuant to the Decontamination and Decommissioning Characterization Protocol (MAN-077-DDCP) and the Pre-Demolition Survey Plan for D&D Facilities (MAN-127-PDSP). The PDS built upon physical, chemical and radiological hazards identified in the facility-specific Historical Site Assessment Report (HSAR).

1.1 Purpose

The purpose of this report is to communicate and document the results of the RLC effort. An RLC is performed before Type 1 building demolition to define the pre-demolition radiological and chemical conditions of a facility. Pre-demolition conditions are compared with the unrestricted release limits for radiological and non-radiological contaminants. RLC results will enable project personnel to make final disposition decisions, develop related worker health and safety controls, and estimate waste volumes by waste types.

1.2 Scope

This report presents the pre-demolition radiological and chemical conditions for Building T891C. Environmental media beneath and surrounding the facility was not within the scope of this RLCR and will be addressed using the Soil Disturbance Permit process and in compliance with RFCA.

1.3 Data Quality Objectives

The Data Quality Objectives (DQOs) used in designing this RLC were the same DQOs identified in the Pre-Demolition survey Plan for D&D Facilities (MAN-127-PDSP.) Refer to section 2.0 of MAN-127-PDSP for these DQOs.

2 HISTORICAL SITE ASSESSMENT

A Facility-specific Historical Site Assessment (HSA) was conducted to understand the facility history and related hazards. The assessment consisted of facility walk-downs, interviews, and document review, including review of the Historical Release Report (refer to the D&D Characterization Protocol, MAN-077-DDCP). Results were used to identify data gaps and needs, and to develop radiological and chemical characterization plans. Results of the facility-specific HSA were documented in the facility-specific *Historical Site Assessment Report (HSAR) for Buildings T891C and T891Q,* dated June 2002, Revision 0 (refer to Attachment B, *Historical Site Assessment Report*). In summary, the HSAR identified minimal potential for radiological or chemical hazards; however, asbestos containing materials and PCBs in paint and light ballasts were possible.

3 RADIOLOGICAL CHARACTERIZATION AND HAZARDS

Building T891C was characterized for radiological hazards per the PDSP. Radiological characterization was performed to define the nature and extent of radioactive materials that may be present on the facility surfaces. Measurements were performed to evaluate the contaminants of concern. Based upon a review of historical and process knowledge, building walk-downs, and MARSSIM guidance, a Radiological Characterization Plan was developed during the planning phase that describe the minimum survey requirements (refer to the RISS Characterization Project files).

Radiological survey package 891401 (interior) was developed for Building T891C in accordance with Radiological Safety Practices (RSP) 16.01, *Radiological Survey/Sampling Package Design, Preparation, Control, Implementation and Closure.* Total surface activity (TSA), removable surface activity (RSA), media samples, and scan measurements were collected in accordance with RSP 16.02 *Radiological Surveys of Surfaces and Structures.* Radiological survey data were verified, validated and evaluated in accordance with RSP 16.04, *Radiological Survey/Sample Data Analysis.* Quality control measures were implemented relative to the survey process in accordance with RSP 16.05, *Radiological Survey/Sample Quality Control.* Radiological survey data, statistical analysis results, and survey locations are presented in Attachment C, *Radiological Data Summary and Survey Maps.* The radiological survey unit packages are maintained in the RISS Characterization Project files.

Twenty-seven (27) TSA measurements (15 random, 5 biased, 5 equipment and 2 QC) and twenty-five (25) RSA measurements (15 random, 5 biased and 5 equipment) were performed; and a minimum 25% of the floor surfaces and 5% of the remaining accessible surfaces were scanned. The RLC data confirmed that the facility does not contain radiological contamination above the surface contamination guidelines provided in the PDSP. Radiological survey data, statistical analysis results, and survey locations are presented in Attachment C, *Radiological Data Summary and Survey Maps.* The radiological survey unit package is maintained in the RISS Characterization Project files. Level 2 isolation control postings are displayed on the building to ensure no radioactive materials are inadvertently introduced.

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The exterior radiological surveys for Building T891C were performed as part of the RISS West Side Exterior PDS strategy effort (authorized by Department of Energy letter, *02-DOE-01598*, dated December 13th, 2002 and approved by CDPHE letter, *RE: Proposed Deviations From The Pre-Demolition Survey Plan (PDSP)*, dated January 27, 2003 (refer to the RISS Characterization Project Files for letter copies). The RISS West Side exterior building radiological surveys and locations can be found in survey unit package EXT-B-001, *RISS West Side Building Exteriors*. Six (6) biased TSA measurements, Six (6) biased RSA measurements, and a one (1) square meter scan at each of the two TSA/RSA locations were performed at biased locations on the exterior surfaces of T891C. The RLC data collected in survey unit package EXT-B-001 confirmed that the exterior surfaces of T891C do not contain radiological contamination above the surface contamination guidelines provided in the PDSP. Radiological survey data, statistical analysis results, and survey map locations for the West-Side Exterior survey unit package EXT-B-001 are maintained in the RISS Characterization Project files.

4 CHEMICAL CHARACTERIZATION AND HAZARDS

Building T891C was characterized for chemical hazards per the PDSP. Chemical characterization was performed to determine the nature and extent of chemical contamination that may be present on, or in this facility. Based upon a review of historical and process knowledge, visual inspections, and PDSP DQOs, additional sampling needs were determined. A Chemical Characterization Plan (refer to RISS Characterization Project files) was developed during the planning phase that describes sampling requirements, the justification for the sample locations and estimated number of samples. Contaminants of concern included asbestos, beryllium, RCRA/CERCLA constituents, lead and PCBs. Refer to Attachment D, *Chemical Data Summaries and Sample Maps*, for details on sample results and sample locations.

4.1 Asbestos

A survey of building materials suspected of containing asbestos was conducted in Building T891C in accordance with the RLCP. A CDPHE-certified asbestos inspector conducted the inspection and sampling in accordance with the *Asbestos Characterization Protocol, PRO-563-ACPR, Revision 1*. Building materials suspected of containing asbestos were identified for sampling at the discretion of the inspector.

A comprehensive, invasive asbestos inspection was conducted in Building T891C to determine the presence of friable and non-friable asbestos containing building materials. All results for asbestos containing materials were "None Detected". Asbestos laboratory sample results and sample locations are contained in Attachment D, *Chemical Data Summaries and Sample Maps*.

4.2 Beryllium (Be)

Based on the HSAR and personnel interviews, Building T891C was an anticipated Type 1 facility. There was not, however, adequate historical and process knowledge to conclude that beryllium was not used or stored in this building. Therefore, biased beryllium sampling was performed in accordance with the PDSP and the *Beryllium Characterization Procedure, PRO-536-BCPR, Revision 0, September 9, 1999.* Biased sample locations corresponded with the most probable areas of dust accumulation (including beryllium dust), assuming airborne deposition.

All beryllium smear sample results for Building T891C were less than 0.1 $\mu g/100cm^2$. Beryllium laboratory sample data and sample location maps are contained in Attachment D, *Chemical Data Summaries and Sample Maps*.

4.3 RCRA/CERCLA Constituents [including metals and volatile organic compounds (VOCs)]

Based on the HSAR, interviews and facility walk-downs of Building T891C, the only RCRA/CERCLA chemicals used in the facility were small quantities of acids and bases in the lab area. These materials were removed in 1999, and there is no evidence or concern of residual contamination. Therefore, RCRA/CERCLA constituent sampling was not performed in this facility as part of this RLC.

Sampling for lead in paint in this facility was not performed. Environmental Waste Compliance Guidance #27, *Lead-based Paint (LBP) and Lead-based paint Debris Disposal*, states that LBP debris generated outside of currently identified high contamination areas shall be managed as non-hazardous (solid) wastes, and additional analysis for characteristics of hazardous waste derived from LBP is not a requirement for disposal.

This facility may contain RCRA regulated materials such as mercury switches and fluorescent lamps. A thorough inspection of the facility will be made, and all regulated materials will be removed prior to demolition.

4.4 Polychlorinated Biphenyls (PCBs)

Based on a review of the HSAR and facility walk-downs, there is no evidence of PCB use or contamination in this facility. Therefore, PCB sampling was not performed as part of this RLC.

Based on the age of Building T891C (constructed after 1980), paints used did not contain PCBs, and painted surfaces will not be managed as PCB Bulk Product Waste.

Because this facility may contain fluorescent light ballasts containing PCBs, fluorescent light fixtures will be inspected to identify PCB ballasts during removal operations. PCB ballasts will be identified based on factors such as labeling (e.g., PCB-containing and non PCB-containing), manufacturer, and date of manufacturing. All ballasts that do not indicate non PCB-containing are assumed to be PCB-containing. Leaking PCB ballasts, and those that weigh more than 9 pounds, will be removed prior to demolition and managed in accordance with Colorado hazardous waste regulations.

5 PHYSICAL HAZARDS

Physical hazards associated with Building T891C are those common in standard industrial environments and include hazards associated with energized systems, utilities, and trips and falls. The building has been relatively well maintained and is in good physical condition, therefore, does not present hazards associated with building deterioration. Physical hazards are controlled by the Site Occupational Safety and Industrial Hygiene Program, which is based on OSHA regulations, DOE orders, and standard industry practice.

6 DATA QUALITY ASSESSMENT

Data used in making management decisions for the decommissioning of Building T891C and consequent waste management are of adequate quality to support the decisions documented in this report. The data presented in this report (Attachments C and D) were verified and validated relative to DOE quality requirements, applicable EPA guidance, and original DQOs of the project.

In summary, the Verification and Validation (V&V) process corroborates that the following elements of the characterization process are adequate:

- the *number* of samples and surveys;
- the *types* of samples and surveys;
- the sampling/survey process as implemented "in the field"; and,
- the laboratory analytical process, relative to accuracy and precision considerations.

Details of the DQA are provided in Attachment E.

7 DECOMMISSIONING WASTE TYPES AND VOLUME ESTIMATES

The demolition and disposal of Building T891C will generate a variety of wastes. Estimated waste types and waste volumes are presented below. All waste can be disposed of as sanitary waste with the exception that if non-leaking PCB ballasts are left in the structure, building debris will be managed as PCB Bulk Product Waste. There is no radioactive or hazardous waste.

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Waste Volume Estimates and Material Types							
Facility	Concrete (cu ft)	Wood (cu ft)	Metal (cu ft)	Corrugated Sheet Metal (cu ft)	Wall Board (cu ft)	ACM (cu ft)	Other Waste
T891C	0	800	1,000	1,200	1,400	0	None

8 FACILITY CLASSIFICATION AND CONCLUSIONS

Based on the analysis of radiological, chemical and physical hazards, Building T891C is classified as a RFCA Type 1 facility pursuant to the RFETS Decommissioning Program Plan (DPP; K-H, 1999) and can be demolished. The Type 1 classification is based on a review of historical and process knowledge, and newly acquired RLC data.

The RLC of Building T891C was performed in accordance with the DDCP and PDSP. All PDSP DQOs were met, and all data satisfied the PDSP DQA criteria. This facility does not contain radiological or hazardous wastes. PCB ballasts will be managed and disposed of in compliance with Environmental Protection Agency (EPA) and Colorado Department of Public Health and Environment (CDPHE) regulations. Demolition debris will be managed in compliance with regulations governing PCBs (40 CFR 761), and Environmental Compliance Guidance #27, *Lead-Based Paint (LBP) and Lead-Based Paint Debris Disposal,* as applicable. Environmental media beneath and surrounding the facility will be addressed at a future date using the Soil Disturbance Permit process and in compliance with RFCA.

To ensure this Type 1 facility remains free of contamination and RLC data remain valid, Level 2 Isolation Controls have been established and the facility posted accordingly.

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9 REFERENCES

DOE/RFFO, CDPHE, EPA, 1996. Rocky Flats Cleanup Agreement (RFCA), July 19, 1996.

DOE Order 5400.5, "Radiation Protection of the Public and the Environment."

EPA, 1994. "The Data Quality Objective Process," EPA QA/G-4.

K-H, 1999. Decommissioning Program Plan, June 21, 1999.

MAN-131-QAPM, *Kaiser-Hill Team Quality Assurance Program*, Rev. 1, November 1, 2001.

MAN-076-FDPM, *Facility Disposition Program Manual*, Rev. 3, January 1, 2002.

MAN-077-DDCP, *Decontamination and Decommissioning Characterization Protocol*, Rev. 3, July 15, 2002.

MAN-127-PDSP, *Pre-Demolition Survey Plan for D&D Facilities*, Rev. 1, July 15, 2002.

MARSSIM - Multi-Agency Radiation Survey and Site Investigation Manual, December 1997 (NUREG-1575, EPA 402-R-97-016).

PRO-475-RSP-16.01, *Radiological Survey/Sampling Package Design, Preparation, Control, Implementation, and Closure*, Rev. 1, May 22, 2001.

PRO-476-RSP-16.02, *Pre-Demolition (Final Status) Radiological Surveys of Surfaces and Structures*, Rev. 1, May 22, 2001.

PRO-477-RSP-16.03, *Radiological Samples of Building Media*, Rev. 1, May 22, 2001.

PRO-478-RSP-16.04, *Radiological Survey/Sample Data Analysis for Final Status Survey*, Rev. 1, May 22, 2001.

PRO-479-RSP-16.05, *Radiological Survey/Sample Quality Control for Final Status Survey*, Rev. 1, May 22, 2001.

PRO-563-ACPR, Asbestos Characterization Procedure, Revision 0, August 24, 1999.

PRO-536-BCPR, Beryllium Characterization Procedure, Revision 0, August 24, 1999.

RFETS, Environmental Waste Compliance Guidance #25, Management of Polychlorinated Biphenyls (PCBs) in Paint and Other Bulk Product Waste During Facility Disposition.

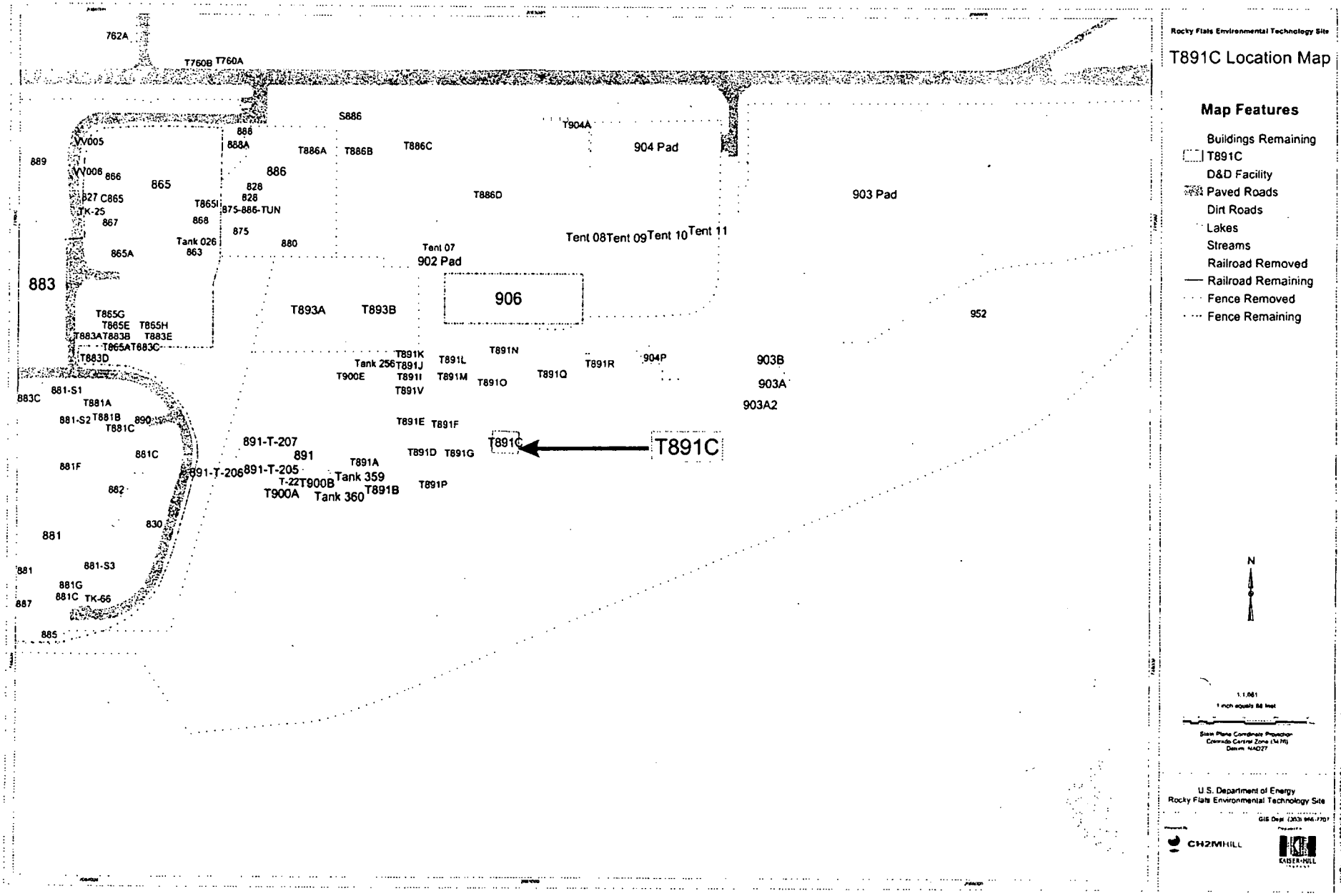
RFETS, Environmental Waste Compliance Guidance #27, Lead-Based Paint (LBP) and Lead-Based Paint Debris Disposal.

RFCA Standard Operation Protocol for Recycling Concrete, September 28, 1999.

Historical Site Assessment Report (HSAR) for Buildings T891C and T891Q,, dated June 2002, Revision 0.

ATTACHMENT A

Facility Location Map



Rocky Flats Environmental Technology Site

T891C Location Map

Map Features

- Buildings Remaining
- T891C
- D&D Facility
- Paved Roads
- Dirt Roads
- Lakes
- Streams
- Railroad Removed
- Railroad Remaining
- Fence Removed
- Fence Remaining

N

1:1,661

1 inch equals 86 feet

State Plane Coordinate Projection
Colorado Central Zone (5476)
Datum: NAD27

U.S. Department of Energy
Rocky Flats Environmental Technology Site

GIS Dept. (303) 966-7707

CH2MHILL

KAISER-HILL

W:\Projects\2004\04-07\41T891C location map.mxd

ATTACHMENT B

Historical Site Assessment Report

D&D RISS Facility Characterization
Historical Site Assessment Report
June, 2002 Rev. 0

Facility ID: Buildings Trailers T891C, and T891Q.
Anticipated Facility Type (1, 2, or 3): Trailers T891C and T891Q are anticipated Type 1 facilities.

This facility-specific Historical Site Assessment (HSA) has been performed in accordance with:
D&D Characterization Protocol, RFETS MAN-077-DDCP, latest version, and
Facility Disposition Program Manual, RFETS MAN-076-FDPM, latest version

Physical Description

Trailers T891C

T891C is a 3900 square foot general office trailer acquired in 1994 and is currently located in the 800-area contractor support yard. The building a corrugated metal siding and corrugated metal skirting. The entries have wooden stairs leading to the entry doors. T891C configuration consists mostly of hard walled offices and two large conference rooms. The ceiling is a drop ceiling made of acoustical tiles with recessed lighting. The floors are vinyl tile.

Trailer T891C has the following utilities: electric, plant water, plant sanitary, and fire protection is provided by wall mounted fire extinguishers.

Trailers T891Q

Trailer T891Q is a 765 square foot single-wide shower office trailer. This trailer was placed into service in 1993 and is located south east of the 904 Pad. T891Q has aluminum siding and with painted wood skirting. Each entry has wood steps leading to the entry doors. The interior is configured with a separate men and woman's shower, toilet and locker room facility. The interior walls are wallboard and the floors are vinyl tiles.

Trailer T891Q has the following utilities: electric, natural gas, plant water, plant sanitary, and fire is protection provided by wall mounted fire extinguishers.

Historical Operations

Trailer T891C

T891C has historically been used as a general office trailer and has housed RISS, ER, and D&D support personnel. However, Room 13 was used as the Resource Technology Lab (RTG) field lab to support the 891 waste treatment facility. Nitric Acid, hydrochloric acid, sulfuric acid and sodium hydroxide pellets are used and stored in the RTG lab. This lab was moved to T891B in 1999. The trailer had no known radiological or hazardous operations other than the field laboratory operations identified above.

Trailer T891Q

T891Q is used as a shower trailer for workers at Building 906and the 904 Pad. The trailer had no other radiological or hazardous operations. Routine radiological surveys show no evidence of contamination.

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Current Operational Status

Trailers T891C is currently empty and T891Q is currently operational.

Contaminants of Concern

Asbestos

Describe any potential, likely, or known sources of Asbestos:

Both T891C and T891Q are posted as potentially containing asbestos. No comprehensive asbestos survey has been performed on these trailers.

Beryllium (Be)

Describe any potential, likely, or known Be production or storage locations:

None of the building addressed in this HSA are on the List of known Be Areas.

Summarize any recent Be sampling results:

There have been no recent Be samples collected on any of these facilities.

Lead

Describe any potential, likely, or known sources of Lead (e.g., paint, shielding, etc.):

Lead in paint should not be a concern for the facilities in this HSA, given the recent age of construction. No processes containing lead were conducted in these trailers.

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RCRA/CERCLA Constituents

Describe any potential, likely, or known sources of RCRA/CERCLA constituents (e.g., chemical storage, waste storage, and processes):

Samples from the 891 water treatment facility where stored in a Room 13 when room 13 was used a small field laboratory. Samples stored in the field lab were environmental samples from the B891 waster treatment facility and had only low levels of contamination. The use of the term "field Laboratory" is misleading because the field lab was primarily used to preserved sample, package and ship samples, and the take field measurements such as pH, conductivity (See historical Operations section above). There is no evidence of building contamination resulting from this activity.

T891Q is the shower trailer for personnel working in Building 906 and the 904 Pad waste storage areas. There is no evidence of chemical contamination associated with this activity.

Describe any potential, likely, or known spill locations (and sources, if any):

None

Describe methods in which spills were mitigated, if any:

None

PCBs

Describe any potential, likely, or known sources of PCBs (e.g., light ballasts, paints, equipment, etc.):

PCBs where not known to have been handled in any of the facilities addressed in this HSA. Due to the recent age of construction, PCBs in paint are not expected.

Describe any potential, likely, or known spill locations (and sources, if any):

No PCB spills occurred in any of the facilities addressed in this HSA.

Describe methods in which spills were mitigated, if any:

No PCB spills occurred in any of the facilities addressed in this HSA.

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Radiological Contaminants

Describe any potential, likely, or known radiological production or storage locations:

Neither Trailer T891C nor T891Q are radiologically posted. Samples from the 891 water treatment facility where stored in a Room 13 when room 13 was used a small field laboratory. Samples stored in the field lab were environmental samples from the B891 waster treatment facility and had only low levels of contamination. The use of the word "field Laboratory" is misleading because the field lab was primarily used to preserved sample, package and ship samples, and the take field measurements such as pH, conductivity (See historical Operations section above). There is no evidence of building contamination resulting from this activity. On occasion, RCTs were housed in T891C. These RCTs occasionally had sealed sources in the trailer. There is not history of these sealed sources leaking.

T891Q is the shower trailer for personnel working in Building 906 and the 904 Pad waste storage areas. There is no evidence of radiological contamination associated with this activity.

Describe any potential, likely, or known spill locations (e.g., known leaking sealed radioactive sources, leaking waste drums, potentially contaminated drains, etc.):

None

Describe methods in which spills were mitigated, f any:

None

Describe any potential, likely, or known isotopes of concern (e.g., weapons grade plutonium, uranium isotopes, pure beta emitters, mixed fission products, etc.):

Other than sealed sources, there were no radiological material stored or handled in any of the facilities addressed in this HSA.

Describe any potential, likely, or known external facility contamination (e.g., stack release points, unfiltered ventilation, facility's physical location to known site releases, etc.):

See section below for information on IHSSs PACs, and UBCs.

Environmental Restoration Concerns

Describe any ER concerns that could affect facility characterization (e.g., IHSSs, PACs, UBCs):

Trailers T891C and t891Q are not associated with any IHSSs, PACs, and UBCs;

Additional Information

Describe any additional information that may be useful during facility characterization (e.g., contaminant migration routes, waste handling operations, physical hazards, Historical Release Reports, WSRIC data, etc.):

None

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D&D RISS Facility Characterization
Historical Site Assessment Report
June, 2002 Rev. 0

References

Provide all sources of information utilized to gather data for facility history (e.g., documents, files, interviews):

Sources reviewed to complete this HSA were the RFETS Facility List, the Historical Release Report, Site Master List of RCRA Units, and the Site IHSS, PAC, and UBC databases. None of the buildings in this HSA have WSRICs. In addition, a facility walkdown and interviews were performed.

Waste Volume Estimates and Material Types

Facility	Concrete (cu ft)	Wood (cu ft)	Metal (cu ft)	Corrugated Sheet Metal (cu ft)	Wall Board (cu ft)	ACM (cu ft)	Other Waste (cu ft)
Trailer T891C	None	800	1000	1200	1400	TBD	N/A
Trailer T891Q	None	300	300	350	450	TBD	N/A

Further Actions

Recommend any further actions, if any (e.g., characterization, decontamination, special handling, etc.):

Begin the RLC/PDS process.

Note:

This HSA was performed prior to SME walkdowns, and chemical and radiological characterization package preparations. SMEs should evaluate and/or verify all information during the RLC/PDS process. SMEs may need to review additional documentation and perform additional interviews. Information contained in this HSA only represents a "snapshot" in time. Subsequent data may be obtained during SME walkdowns and chemical and radiological characterization package preparations, which may conflict with this report. However, this report will not be amended, and the newer data will take precedence over the data in this report. Newer Data will appear in the RLCR/PDSR.

Prepared By: Doug Bryant / /s/ / June 2002

Name Signature Date

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ATTACHMENT C

Radiological Data Summaries and Survey Maps

Survey Area: 4 | **Survey Unit:** 891401 | **Building:** T891C

Description: Trailer T891C, Interior, all surfaces

Rocky Flats Environmental Technology Site
Final Radiological Survey Summary Results

Total Surface Activity Measurements

Nbr Random Measurements Required: 15 | Nbr Biased Measurements Required: 10 | Nbr QC Required: 2

Nbr Random Measurements Performed: 15 | Nbr Biased Measurements Performed: 10 | Nbr QC Performed: 2

Alpha

Maximum:	18.1 dpm/100cm²
Minimum:	-15.2 dpm/100cm²
Mean:	2.2 dpm/100cm²
Standard Deviation:	8.3
QC Maximum:	22.1 dpm/100cm²
QC Minimum:	8.3 dpm/100cm²
QC Mean:	15.2 dpm/100cm²
Transuranic DCGL$_W$:	100.0 dpm/100cm²
Transuranic DCGL$_{EMC}$:	300.0 dpm/100cm²

Removable Surface Activity Measurements

Nbr Random Measurements Required: 15 | Nbr Biased Measurements Required: 10

Nbr Random Measurements Performed: 15 | Nbr Biased Measurements Performed: 10

Alpha

Maximum:	4.3 dpm/100cm²
Minimum:	0.0 dpm/100cm²
Mean:	1.6 dpm/100cm²
Standard Deviation:	1.1
Transuranic DCGL$_W$:	20.0 dpm/100cm²

Media Sample Results

Nbr Random Required: 0 | Nbr Biased Required: 0

Nbr Random Collected: 0 | Nbr Biased Collected: 0

Conclusion - A comparison of the random, biased and QC measurement results against the PDSP Table 7-1 Surface Contamination Guideline limits was conducted; the comparison demonstrates that this survey unit passes the criterion specified in the PDSP.

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Survey Area: 4 **Survey Unit:** 891401 **Building:** T891C

Description: Trailer T891C Interior; all surfaces

Instrument Data Sheet

Inst/RCT Number	RCT ID	Analysis Date	Instr Model	Instru S/N	Probe Type	Calibration Due Dt	Instru Efficiency		A-Priori MDA (dpm/100cm²)		Survey Type
							Alpha	Beta	Alpha	Beta	
1	712193	08/28/04	Electra	290	DP-6	02/18/05	0.202	NA	48.0	NA	T/S
2	702058	08/28/04	Electra	1261	DP-8	02/26/05	0.173	NA	48.0	NA	S
3	711447	08/28/04	Electra	1241	AP-6	02/18/05	0.189	NA	48.0	NA	S
4	700831	08/28/04	Electra	1379	DP-6	02/18/05	0.220	NA	48.0	NA	T/S
5	701418	08/28/04	Electra	3113	DP-6	02/23/05	0.215	NA	48.0	NA	T/S
6	712193	08/28/04	Ludlum 292	99042	NA	10/26/04	0.349	NA	10.0	10.0	R
7	711447	08/28/04	Electra	1415	DP-6	10/27/04	0.217	NA	48.0	NA	Q/S

Survey Types: T = Total Surface Activity, Q = TSA QC, S = Scan, R = Removable Surface Activity, I = Investigation

Survey Area: 4	Survey Unit: 891401	Building: T891C
Description: Trailer T891C, Interior, all surfaces		

Random Removable Surface Activity Data Sheet

Random Measurement Location	Inst / RCT Nbr	Net Alpha (dpm/100cm²)	Net Beta (dpm/100cm²)	
891401PRP-N001	6	0.0	N/A	
891401PRP-N002	6	0.0	N/A	
891401PRP-N003	6	1.4	N/A	
891401PRP-N004	6	1.4	N/A	
891401PRP-N005	6	1.4	N/A	
891401PRP-N006	6	2.9	N/A	
891401PRP-N007	6	1.4	N/A	
891401PRP-N008	6	1.4	N/A	
891401PRP-N009	6	2.9	N/A	
891401PRP-N010	6	4.3	N/A	
891401PRP-N011	6	1.4	N/A	
891401PRP-N012	6	1.4	N/A	
891401PRP-N013	6	0.0	N/A	
891401PRP-N014	6	1.4	N/A	
891401PRP-N015	6	1.4	N/A	

Survey Area: 4 **Survey Unit:** 891401 **Building:** T891C

Description: Trailer T891C, interior, all surfaces

Biased Removable Surface Activity Data Sheet

Biased Measurement Location	Inst / RCT Nbr	Net Alpha (dpm/100cm²)	Net Beta (dpm/100cm²)	
891401PBP-N016	6	2.9	N/A	
891401PBP-N017	6	1.4	N/A	
891401PBP-N018	6	1.4	N/A	
891401PBP-N019	6	2.9	N/A	
891401PBP-N020	6	0.0	N/A	
891401PBP-N021	6	1.4	N/A	
891401PBP-N022	6	1.4	N/A	
891401PBP-N023	6	2.9	N/A	
891401PBP-N024	6	1.4	N/A	
891401PBP-N025	6	1.4	N/A	

Comments:

Survey Area: 4	Survey Unit: 891401	Building: T891C
Description: Trailer T891C Interior all surfaces		

Random/QC Total Surface Activity Data Sheet

Random Measurement Location	Inst / RCT Nbr	Net Alpha (dpm/100cm²)	Net Beta (dpm/100cm²)	
891401PRP-N001	4	-9.3	N/A	
891401PRP-N002	5	-3.1	N/A	
891401PRP-N003	1	-2.1	N/A	
891401PRP-N004	4	3.0	N/A	
891401QRP-N004	7	8.3	N/A	
891401PRP-N005	1	-0.1	N/A	
891401PRP-N006	5	3.5	N/A	
891401PRP-N007	4	-3.4	N/A	
891401PRP-N008	4	18.0	N/A	
891401QRP-N008	7	22.1	N/A	
891401PRP-N009	1	11.3	N/A	
891401PRP-N010	5	-3.1	N/A	
891401PRP-N011	1	-5.0	N/A	
891401PRP-N012	5	-3.1	N/A	
891401PRP-N013	4	-15.2	N/A	
891401PRP-N014	5	9.5	N/A	
891401PRP-N015	1	11.3	N/A	

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Survey Area: 4 **Survey Unit:** 891401 **Building:** T891C

Description: Trailer T891C Interior, all surfaces

Biased Total Surface Activity Data Sheet

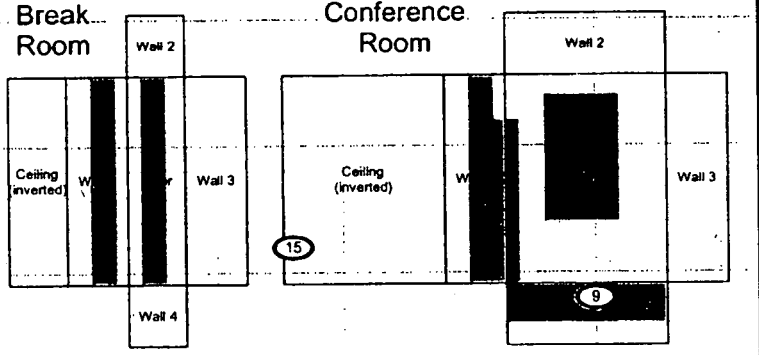
Biased Measurement Location	Inst / RCT Nbr	Net Alpha (dpm/100cm²)	Net Beta (dpm/100cm²)	
891401PBP-N016	1	11.7	N/A	
891401PBP-N017	1	-1.7	N/A	
891401PBP-N018	4	-5.7	N/A	
891401PBP-N019	4	-5.7	N/A	
891401PBP-N020	1	18.1	N/A	
891401PBP-N021	1	4.7	N/A	
891401PBP-N022	1	1.8	N/A	
891401PBP-N023	4	9.8	N/A	
891401PBP-N024	4	3.4	N/A	
891401PBP-N025	4	6.6	N/A	

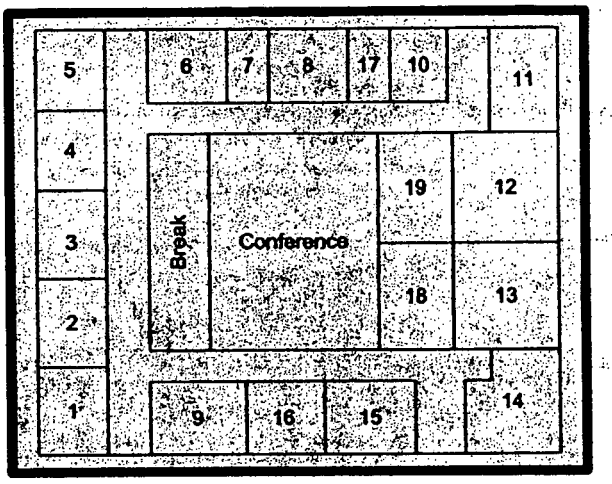
Comments:

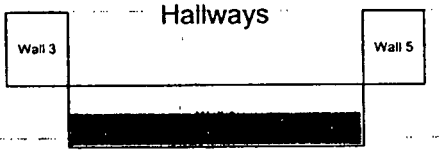
PRE-DEMOLITION SURVEY FOR T891C

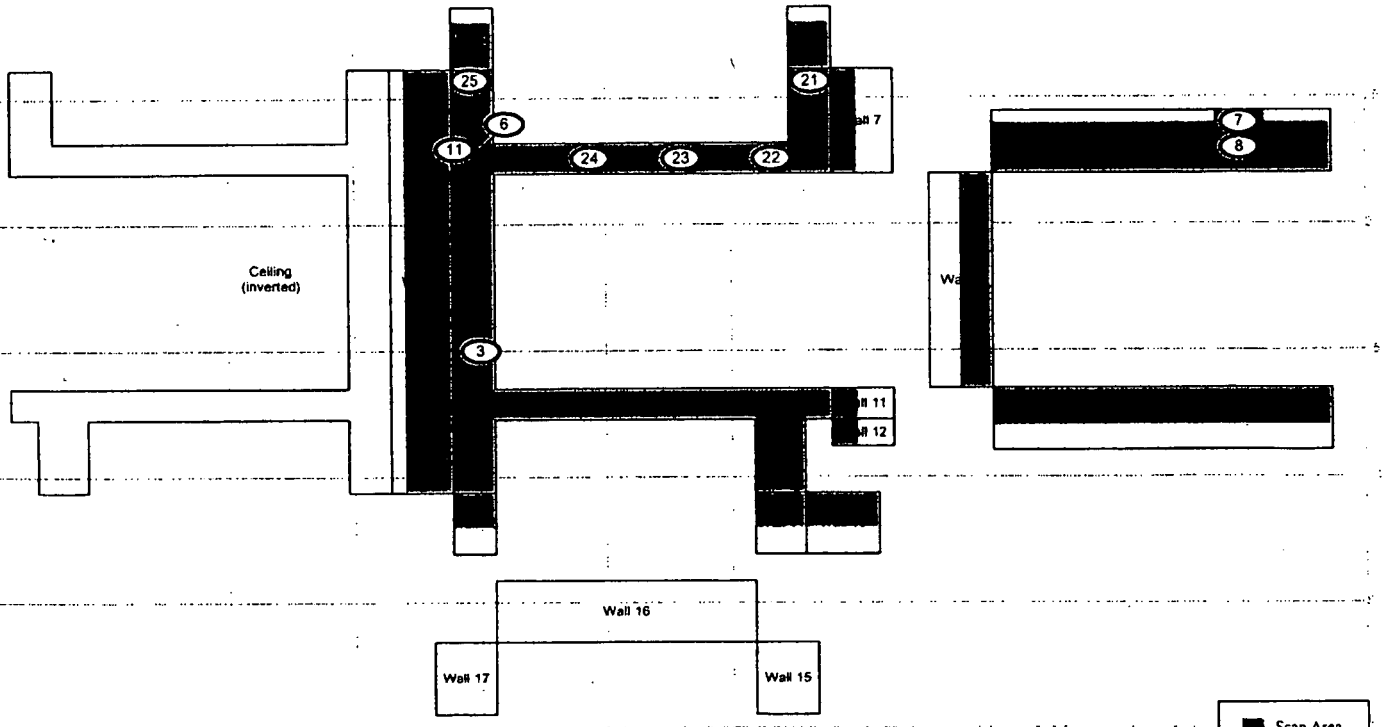
Survey Area: 4 **Survey Unit: 891401** **Classification: 3**
Building: T891C
Survey Unit Description: Interior of T891C
Total Area: 1507 sq. m. **Total Floor Area: 345 sq. m.**

T891C Interior









Scan Area

SURVEY MAP LEGEND

- Smear & TSA Location
- Smear, TSA & Sample Location
- Open/Inaccessible Area
- Area in Another Survey Unit

N

0 FEET 30
0 METERS 10

1 inch = 24 feet 1 grid sq. = 1 sq. m.

Scan Survey Information
Survey Instrument ID #(s) & RCT ID #(s):
1 - 5, 7

U.S. Department of Energy
Rocky Flats Environmental Technology Site

Prepared by: GIS Dept. 303-966-7707 Prepared for:

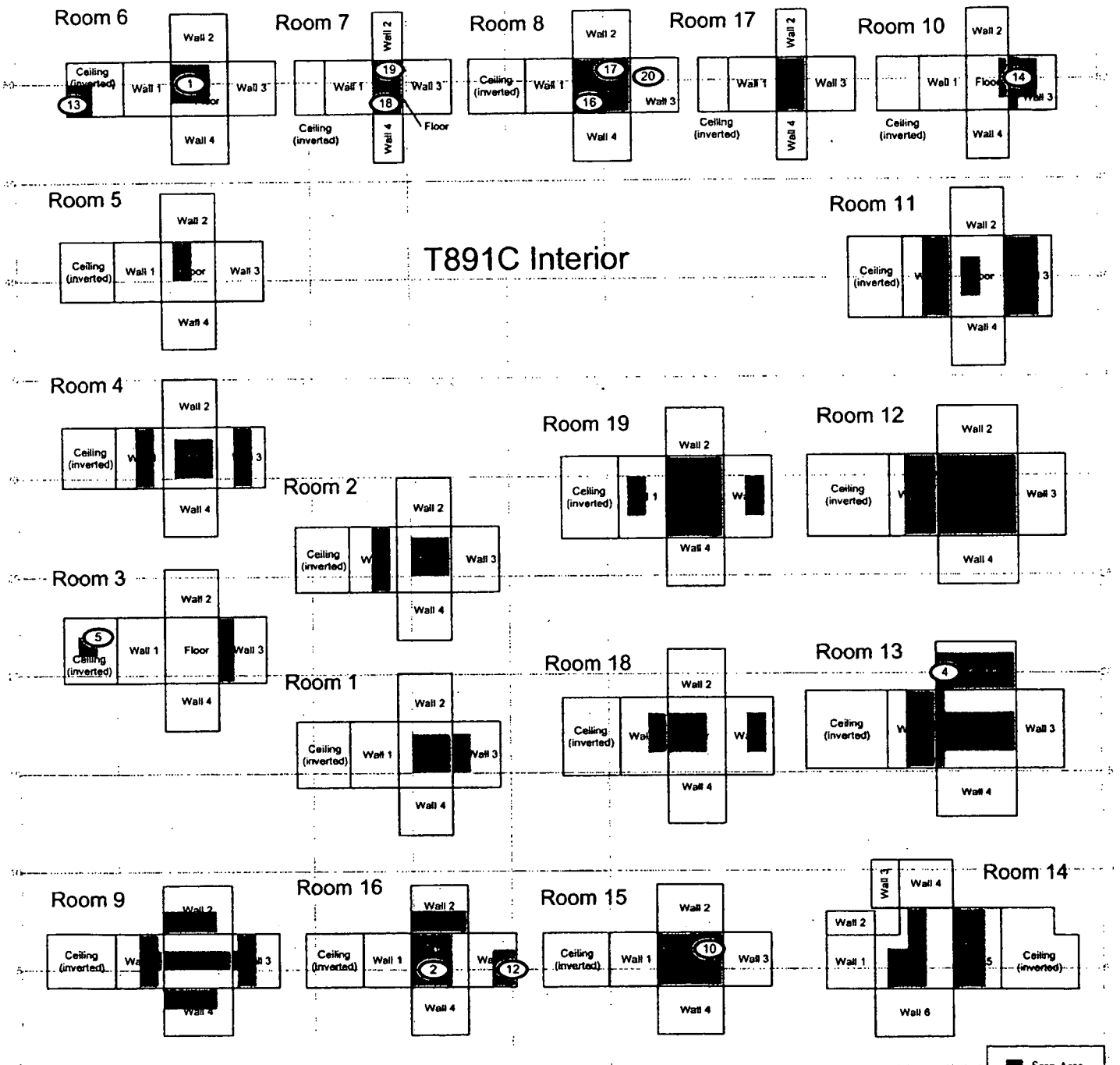
CH2MHILL Communications Group

KAISER HILL

MAP ID: 03-0189/T891C-IN1-SC Aug. 30, 2004

PRE-DEMOLITION SURVEY FOR T891C

Survey Area: 4 **Survey Unit: 891401** **Classification: 3**
Building: T891C
Survey Unit Description: Interior of T891C
Total Area: 1507 sq. m. **Total Floor Area: 345 sq. m.**



SURVEY MAP LEGEND

- Smear & TSA Location
- Smear, TSA & Sample Location
- Open/Inaccessible Area
- Area in Another Survey Unit

N

0 FEET 30
0 METERS 10

1 inch = 24 feet 1 grid sq. = 1 sq. m.

Scan Survey Information
Survey Instrument ID #(s) & RCT ID #(s):
1 - 5, 7

U.S. Department of Energy
Rocky Flats Environmental Technology Site

Prepared by: GIS Dept. 303-966-7707 Prepared for:

CH2MHILL Communications Group

KAISER HILL

MAP ID: 03-0189/T891C-IN2-SC Aug. 30, 2004

ATTACHMENT D

Chemical Data Summaries and Sample Maps

Asbestos Data Summary

Sample Number	Map Survey Location	Room	Material Sampled and Location	Analytical Results
RIN 03Z1394				
T891C-04092003-315-201	1	1	White/gray ceiling tile	None Detected
T891C-04092003-315-202	2	1	Yellow mastic/white floor tile	None Detected

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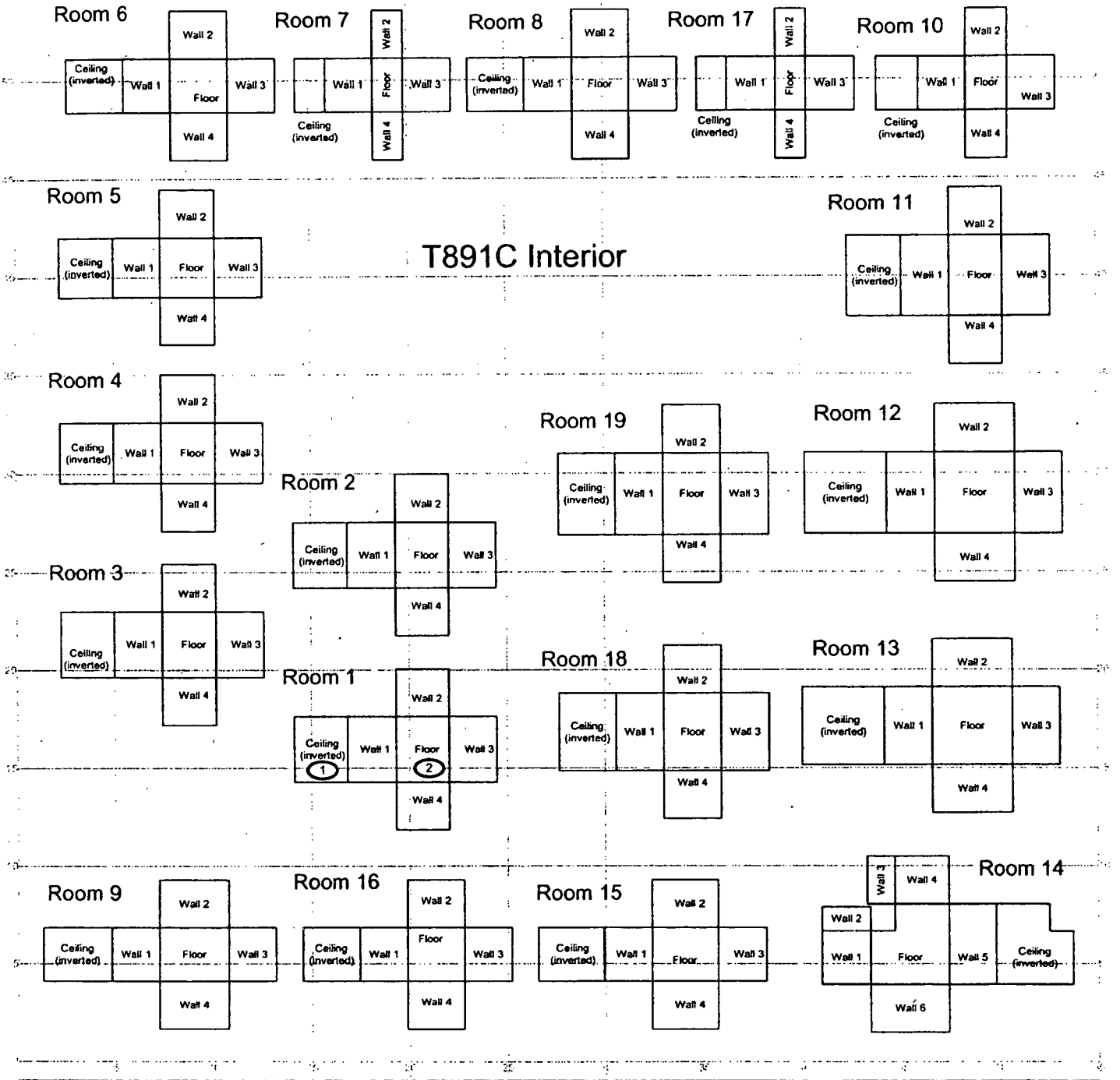
CHEMICAL SAMPLE MAP

Building T891C
Asbestos



SURVEY MAP LEGEND

- Asbestos Sample Location
- Beryllium Sample Location
- Lead Sample Location
- RCRA/CERCLA Sample Location
- PCB Sample Location
- Open/Inaccessible Area
- Area in Another Survey Unit

N

0 FEET 30

0 METERS 10

1 inch = 24 feet 1 grid sq. = 1 sq. m.

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Prepared by: GIS Dept. 303-966-7707

Prepared for:

CH2MHILL
Communications Group

KAISER HILL

MAP ID: 03-0189/T891C-IN2-ASB April 18, 2003

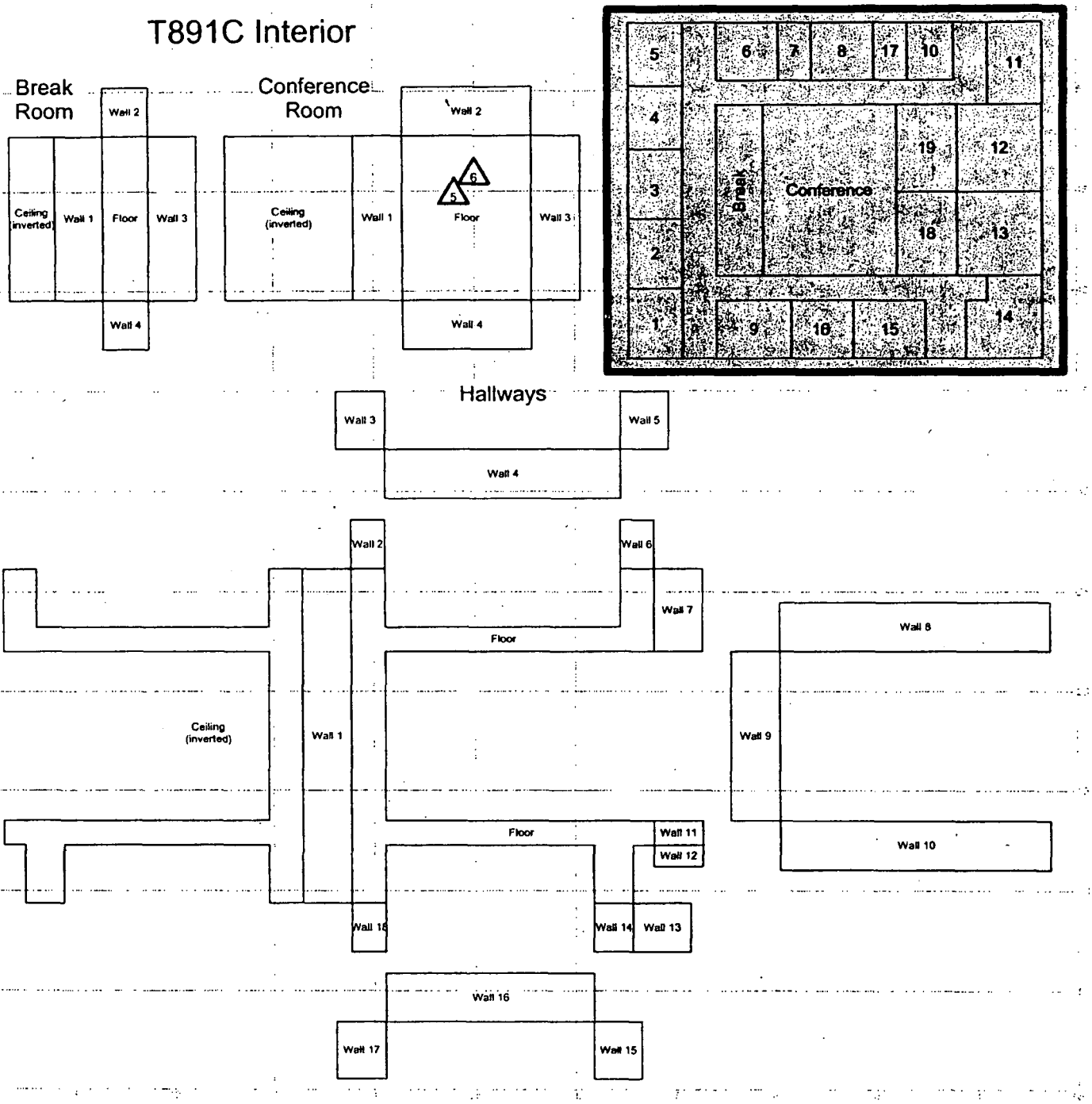
Beryllium Data Summary

Sample Number	Survey Map Point Location	Room	Sample Location	Result ($\mu g/100\ cm^2$)
T891C - RIN 03Z1395				
T891C-040903-315-101	1	13	Exterior of Fume hood, biased	< 0.1
T891C-040903-315-102	2	13	Interior of Fume hood, biased	< 0.1
T891C-040903-315-103	3	19	Locker Room Floor, biased	< 0.1
T891C-040903-315-104	4	17	Janitor Closet Floor, biased	< 0.1
T891C-040903-315-105	5	Conference Room	Floor, biased	< 0.1
T891C – RIN 04Z2521				
T891C 08252004-9-001	1	Conference Room	Floor, biased	< 0.1
T891C-08252004-9-002	2	16	Table Top, biased	< 0.1
T891C-08252004-9-003	3	14	Floor, biased	< 0.1
T891C-08252004-9-004	4	12	Floor, biased	< 0.1
T891C-08252004-9-005	5	8	Table Top, biased	< 0.1
T891C-08252004-9-006	6	2	Shelf, biased	< 0.1

CHEMICAL SAMPLE MAP

Building T891C
Beryllium

T891C Interior



SURVEY MAP LEGEND

- Asbestos Sample Location
- Beryllium Sample Location
- Lead Sample Location
- RCRA/CERCLA Sample Location
- PCB Sample Location
- Open/Inaccessible Area
- Area in Another Survey Unit

N

0 FEET 30

0 METERS 10

1 inch = 24 feet 1 grid sq. = 1 sq. m.

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Prepared by: GIS Dept. 303-966-7707

Prepared for:

CH2MHILL
Construction Group

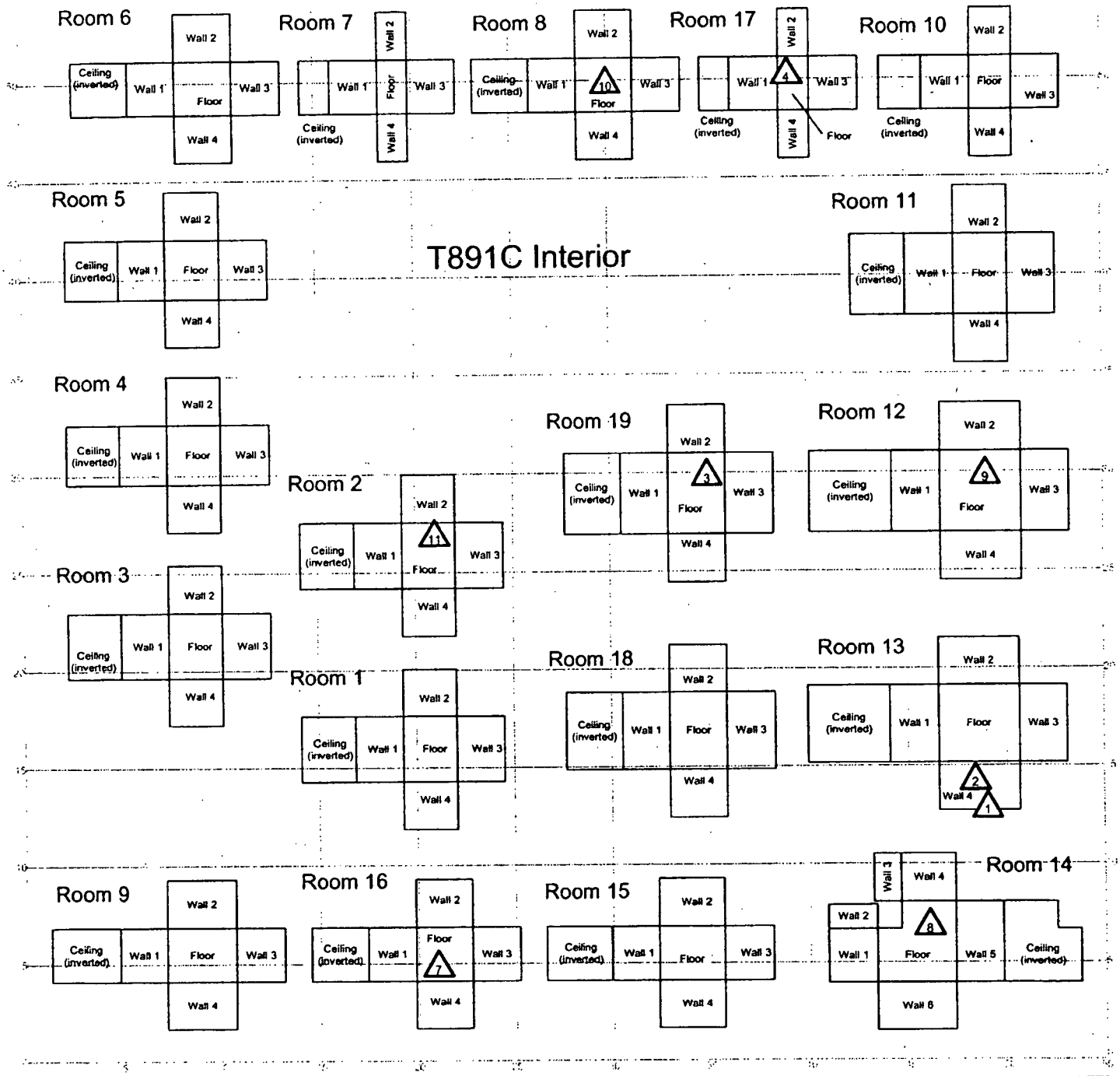
KAISER HILL

MAP ID: 03-0189/T891C-IN1-BE

April 18, 2003

CHEMICAL SAMPLE MAP

Building T891C
Beryllium



SURVEY MAP LEGEND

- Asbestos Sample Location
- Beryllium Sample Location
- Lead Sample Location
- RCRA/CERCLA Sample Location
- PCB Sample Location
- Open/Inaccessible Area
- Area in Another Survey Unit

N

0 FEET 30

0 METERS 10

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Prepared by: GIS Dept. 303-966-7707

Prepared for:

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KAISER HILL

MAP ID: 03-0189/T891C-IN2-BE

April 18, 2003

ATTACHMENT E

Data Quality Assessment (DQA) Detail

DATA QUALITY ASSESSMENT (DQA)

VERIFICATION & VALIDATION OF RESULTS

V&V of the data confirm that appropriate quality controls are implemented throughout the sampling and analysis process, and that any substandard controls result in qualification or rejection of the data in question. The required quality controls and their implementation are summarized in a tabular, checklist format for each category of data – radiological surveys and chemical analyses (specifically asbestos and beryllium).

DQA criteria and results are provided in a tabular format for each suite of surveys or chemical analyses performed; the radiological survey assessment is provided in Table E-1, asbestos in E-2, and beryllium in E-3. A data completeness summary for all results is given in Table E-4.

All relevant Quality records supporting this report are maintained in the RISS Characterization Project Files. This report will be submitted to the CERCLA Administrative Record for permanent storage within 30 days of approval by the Regulators. All radiological data are organized into Survey Packages, which correlate to unique (MARSSIM) Survey Units. Chemical data are organized by RIN (Report Identification Number) and are traceable to the sample number and corresponding sample location.

Beta/gamma survey designs were not implemented for Building T891C based on the conservatism of the transuranic limits used as DCGLs in the unrestricted release decision process. Survey designs were implemented based on the transuranic limits used as DCGLs in the unrestricted release decision process. All survey results were evaluated against, and were less than the Transuranic $DCGL_w$ (100 dpm/100cm^2) and the Uranium $DCGL_w$ (5,000 dpm/100cm^2) unrestricted release limits.

Consistent with EPA's G-4 DQO process, the radiological survey design (for those survey units performed per PDS requirements) was optimized by checking actual measurement results (acquired during pre-demolition surveys) against model output with original estimates. Use of actual sample/survey (result) variances in the MARSSIM DQO model confirms that an adequate number of surveys were acquired.

SUMMARY

In summary, the data presented in this report have been verified and validated relative to the quality requirements and project decisions as stated in the original DQOs. All data are useable based on qualifications stated herein and are considered satisfactory without qualification. All media surveyed and sampled yielded results less than their associated action levels and with acceptable certainties.

All beryllium results were less than associated action levels (0.1 μg/100cm^2) and asbestos results were "none detected", also confirming a Type 1 facility classification.

Based upon an independent review of the radiological data, it is determined that the original project DQOs satisfied MARSSIM guidance. All facility contamination levels were below applicable unrestricted release levels. Minimum survey requirements were met, sampling/survey protocol was performed in accordance with applicable procedures, survey units were properly designed and bounded, and instrument performance and calibration were within acceptable limits. All radiological results meet the PDS unrestricted release criteria.

Chain of Custody was intact; documentation was complete, hold times were acceptable (where applicable,) and packaging integrity/custody seals were maintained throughout the sampling/analysis process. Level 2 Isolation Controls have been posted to prevent the inadvertent introduction of contamination into the facility. On this basis, Building T891C meets the unrestricted release criteria with the confidences stated herein and is acceptable for demolition.

Table E-1 V&V of Radiological Surveys – Building T891C

V&V CRITERIA, RADIOLGICAL SURVEYS		K-H RSP 16.00 Series MARSSIM (NUREG-1575)		
QUALITY REQUIREMENTS				
Parameters		Measure	frequency	COMMENTS
ACCURACY	initial calibrations	90%<x<110%	≥1	Multi-point calibration through the measurement range encountered in the field; programmatic records.
	daily source checks	80%<x<120%	≥1/day	Performed daily/within range.
	local area background: Field	typically < 10 dpm	≥1/day	All local area backgrounds were within expected ranges (i.e., no elevated anomalies.)
PRECISION	field duplicate measurements for TSA	≥5% of real survey points	≥10% of reals	N/A
REPRESENTATIVENESS	MARSSIM methodology: Survey Units 891401 (interior) and EXT-B-001 (exterior).	statistical and biased	NA	Random w/ statistical confidence.
	Survey Maps	NA	NA	Random and biased measurement locations controlled/mapped to ±1m.
	Controlling Documents (Characterization Pkg; RSPs)	qualitative	NA	Refer to the Characterization Package (planning document) for field/sampling procedures (located in Project files); thorough documentation of the planning, sampling/analysis process, and data reduction into formats.
COMPARABILITY	units of measure	dpm/100cm^2	NA	Use of standardized engineering units in the reporting of measurement results.
COMPLETENESS	Plan vs. Actual surveys usable results vs. unusable	>95% >95%	NA	See Table E-4 for details.
SENSITIVITY	detection limits	TSA: ≤50 dpm/100cm^2 RA: ≤10 dpm/100cm^2	all measures	MDAs ≤ 50% DCGL$_w$ per MARSSIM guidelines.

Table E-2 V&V of Asbestos Results – Building T891C

V&V CRITERIA, CHEMICAL ANALYSES		DATA PACKAGE		
ASBESTOS	METHOD: EPA 600/R-93/116	LAB ---->	Reservoirs Environmental, Inc	
QUALITY REQUIREMENT		RIN ---->	RIN03Z1394	
		Measure	Frequency	COMMENTS
ACCURACY	Calibrations: Initial/continuing	below detectable amounts	≥1	Semi-quantitative, per (microscopic) visual estimation.
PRECISION	Actual Number Sampled LCSD Lab duplicates	all below detectable amounts	≥ 2 samples	Semi-quantitative, per (microscopic) visual estimation.
REPRESENTATIVENESS	COC	Qualitative	NA	Chain-of-Custody intact: completed paperwork, containers w/ custody seals.
	Hold times/preservation	Qualitative	NA	N/A
	Controlling Documents (Plans, Procedures, maps, etc.)	Qualitative	NA	See original Chemical Characterization Package (planning document); for field/sampling procedures (located in project file;) thorough documentation of the planning, sampling/analysis process, and data reduction into formats.
COMPARABILITY	Measurement Units	% by bulk volume	NA	Use of standardized engineering units in the reporting of measurement results.
COMPLETENESS	Plan vs. Actual samples Usable results vs. unusable	Qualitative	NA	See Table E-4; final number of samples at Certified Inspector's discretion.
SENSITIVITY	Detection limits	<1% by volume	all measures	N/A

Table E-3 V&V of Beryllium Results – Building T891C

V&V CRITERIA, CHEMICAL ANALYSES		DATA PACKAGE		
BERYLLIUM	Prep: NMAM 7300 METHOD: OSHA ID-125G	LAB ---->	Reservoirs Environmental, Inc.	
QUALITY REQUIREMENTS		RIN ---->	RIN03Z1395 RIN04Z2521	
		Measure	Frequency	COMMENTS
ACCURACY	Calibrations Initial	Linear calibration	≥1	No qualifications significant enough to change project decisions i.e., classification of a Type 1 facility is confirmed. All results were below associated action levels.
	Continuing	80%<%R<120%	≥1	
	LCS/MS	80%<%R<120%	≥1	
	Blanks - lab & field	<MDL	≥1	
	interference check std (ICP)	NA	NA	
PRECISION	LCSD	80%<%R<120% (RPD<20%)	≥1	
	field duplicate	all results < RL	≥1	
REPRESENTATIVENESS	COC	Qualitative	NA	
	hold times/preservation	Qualitative	NA	
	Controlling Documents (Plans, Procedures, maps, etc.)	Qualitative	NA	
COMPARABILITY	measurement units	ug/100cm^2	NA	
COMPLETENESS	Plan vs. Actual samples usable results vs. unusable	>95% >95%	NA	
SENSITIVITY	detection limits	MDL of 0.00084 ug/100cm^2	all measures	

Table E-4 Data Completeness Summary – Building T891C

ANALYTE	Building/Area/ Unit	Sample Number Planned (Real & QC)[A]	Sample Number Taken (Real & QC)	Project Decisions (Conclusions) & Uncertainty	Comments (RIN, Analytical Method, Qualifications, etc.)
Asbestos	Building T891C (interior)	6 biased	2 biased	No ACM present, all results < 1% by volume	40 CFR763.86; 5 CCR 1001-10; EPA 600/R-93/116 RIN03Z1394
Beryllium	Building T891C (interior)	5 biased	11 biased	No beryllium contamination found, all results less than associated action levels	OSHA ID-125G RIN03Z1395: sample map locations 1-5. RIN04Z2521: sample map locations 6-11. No results above action level (0.2ug/100cm^2) or investigative level (0.1 ug/100cm^2).
Radiological	Survey Area 4 Survey Unit: 891401 Building T891C (interior, all surfaces)	20 α TSA (15 random/5 biased) 20 α Smears (15 random/5 biased) 5 α TSA and 5 α Smears Equipment 2 QC TSA 25% scan of floor, 5% scan of remaining accessible surfaces	20 α TSA (15 random/5 biased) 20 α Smears (15 random/5 biased) 5 α TSA and 5 α Smears Equipment 2 QC TSA 25% scan of floor, 5% scan of remaining accessible surfaces	No elevated contamination found at any location; all results below PDS unrestricted release levels	Transuranic DCGLs were used.